

Appl. No. : 09/844,155
Filed : April 27, 2001

REMARKS

Status of Claims

By this paper, Applicant presents Claims 1-4 for reconsideration and allowance.

Discussion of Rejection Under 35 USC §102(b)

The Examiner has rejected Claim 4 under 35 USC §102(b) as allegedly anticipated by JP 50072216. The Examiner contends that all Claim limitations are taught by JP 50072216. JP '216 teaches an alloy for high tension wire having a tensile strength of 676 MPa. The Examiner recognizes that this value is outside the range of 400-650 recited in the claim. However, because the reference states "approximately 69 kg/mm²," the Examiner contends that this allows a 10% variance.

The '216 reference is directed to high tension cable. This end product requires a higher tensile strength than an IC lead pin, and is not subject to repeated bending. It is thus not surprising that the tensile strength reported for the alloy in '216 is higher than the claimed range. This reference cannot be taken to teach or suggest a tensile strength in the 400-650 MPa range, regardless of speculation on what the '216 applicant considered an "approximate" measurement. In fact, approximately 69 would most naturally imply 68-70, which is still outside the claimed range.

Furthermore, the production conditions described in this reference are different than the preferred conditions described in the present application. On page 6 of the application, an intermediate annealing of 400 to 600 degrees C for 2-4 hours is described. In the '216 reference, an anneal of 650 degrees C for 1 hour is described. Although the claim is not limited to a particular production method, the shorter anneal of the '216 reference will tend to increase the tensile strength of the final product and reduce its performance under repeated bending.

The reference describes a tensile strength above the claimed range and a production process and final application which suggests higher tensile strength values. For these reasons, it is respectfully submitted that the '216 reference does not anticipate or render obvious the invention of Claim 4.

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Discussion of Rejection Under 35 USC §103(a)

The Examiner has rejected Claims 1-3 under 35 USC §103(a) as allegedly unpatentable over JP 06150722 (JP '722) in view of JP 54023031 (JP '031). The Examiner alleges that JP '722 teaches the claimed Cu base alloys having the claimed electrical conductivity property. The Examiner also alleges that JP '031 teaches a similar Cu alloy having a tensile strength within the claimed range.

JP '722 teaches copper alloys for use in "coils...for liquid fuel injection equipment" and teaches copper alloys (Table 1, samples 6 and 10) having compositions within the ranges of Claim 1. However, JP '722 fails to teach or suggest copper alloys having the claimed tensile strength. The '722 invention is directed to alloys and coatings to reduce corrosion in a coil for a fuel injector. Previously, pure copper or brass (a Zn/Cu alloy) was used for this purpose. Pure copper has a tensile strength below the claimed range of 400-650 MPa. Brass, especially the high Zinc content Brass described in the '722 application, has a tensile strength generally far above the claimed range of 400-650 MPa. In fact, the preferred embodiments of the '722 invention have a wire core made of 15-40% Zn. These alloys will have very high tensile strengths above the claimed range no matter how they are produced, and would not be suitable for the IC lead pin as claimed.

The Examiner points out that the '722 patent application also discloses copper alloys having elements of Sn, Zn, and Mg within the claimed ranges. Although tensile strength is dependent on the elemental content of the alloy, these disclosed alloys could have tensile strengths inside or outside the claimed range depending on the conditions of production. The '722 application says nothing about their tensile strengths. However, given the fact that high Zn content brass is described as most suitable in the '722 application, one of skill in the art would be motivated by these teachings to process these alloys so that a high tensile strength above the claimed upper limit of 650 MPa is produced.

Even though the claimed tensile strength is not taught in the '722 patent, the Examiner argues that JP '031 teaches tensile stress of at least 50 kg/mm². Thus, the Examiner concludes that the combination of references discloses all of the claimed features.

However, the composition disclosed in JP '031 explicitly includes Ag 0.03-0.25 wt. % for the precise purpose of raising the tensile strength. As shown in Table 3 of this reference, Cu with

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no Ag or only 0.02% Ag shows tensile strength of 27.2 and 30.3 kg/mm² respectively. In addition, in the upper right column of page 179 this reference states that it is hard to obtain a tensile strength of 50 kg/mm² or more if the Ag content is less than 0.03%.

Although JP '031 discloses many optional elements, Ag is not an optional element in the composition, but *must* be included in the alloy. In contrast, the alloys of Claim 1 *consist of* (1) Cu, Zn, and Mg or (2) Cu, and Sn. The "consisting of" transitional phrase explicitly excludes Ag except as an unavoidable impurity.

One of ordinary skill in the art would, if anything, be motivated by the '031 reference to add Ag to the alloys of '722 in order to raise conductivity to be closer to pure copper and to raise tensile strengths to be closer to high Zn content brass. As described above, this would typically be greater than the 650 MPa upper limit of the claim. In fact, the examples of the invention in the '031 document have tensile strengths of 67.3 and 68.1 kg/mm², both of which are also above the 650 MPa limit of Claim 1.

The '722 and '031 documents therefore do not teach or suggest the claimed alloys with the claimed properties either alone or in combination. Applicant does not claim just *any* alloy having the tensile stress properties, but rather, a specific alloy composition with the claimed electrical conductance and tensile stress properties.

Therefore, Applicant respectfully requests reconsideration and allowance of Claims 1-3 because the references fail to teach an alloy having the claimed composition and properties. Furthermore, the references fail to provide any motivation to modify or combine the teachings in such a way that results in Applicant's claimed copper alloy.

CONCLUSION

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims for patentability purposes pursuant to 35 U.S.C. §§ 102 and 103, the reasons therefor, and arguments in support of the patentability of the pending claim set are presented above. In light of these amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. Applicant submits that the claim limitations discussed above represent only illustrative

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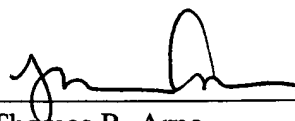
distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

If there are any impediments to allowance of the claims that can be resolved with a telephone call, the Examiner is respectfully invited to call the undersigned. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 2/17/04

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